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DRAFT TECHNICAL REPORT NO. 10

TEAM 3.4 STAGE 10

SELECTION OF PREFERRED SITE

VISUAL ASSESSMENT

THE LANDPLAN COLLABORATIVE LTD.

URBAN DOCUMENTATION CENTRE
RESEARCH UNIT FOR URBAN STUDIES
McMASTER UNIVERSITY
HAMILTON, ONTARIO

ENVIRONMENTAL ASSESSMENT
LANDFILL COMPONENT OF SOLID WASTE MANAGEMENT

JANUARY 1985

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1.0 TERMS OF REFERENCE

The Terms of Reference for the visual assessment were as follows:

1. Provide documentation of the present visual context with respect to views through photographs and field investigation.

2. Review special activities in the vicinity of candidate sites that may potentially be affected by a landfill operation (e.g. recreation opportunities).

3. Review changes in visual impacts due to changes in site elevation (e.g. present versus final contours).

4. Identify possible mitigation measures to reduce adverse effects of landfilling such as progressive rehabilitation of landfill, buffering operations and land use planning.

2.0 STUDY DOCUMENTS REVIEWED

The following documents were reviewed as background to the Visual Assessment Technical Report.

Documents by Walker Wright Young Associates Limited Planning Consultants

- Interim Report on Public Concerns and Issues, Phase 2, Stage 2C, Selection of preferred Site, June 1984.
- Selection of Preferred Site Phase 2, Stage 2C Final Work Program, May 1984.
- Analysis of Submissions Phase 2, Stage 2C, Final Site(s) Evaluation April 1984.
- Consolidation Report Phase 2, Stage 2B, Selection of Candidate Sites. April 1984.
- Draft Report Phase 2, Stage 2B, Selection of Candidate Sites February 1984.
- Appendices, Phase 2, Stage 2B, Selection of Candidate Sites, February 1984.
- Submissions Evaluation Factors, Phase 2, Stage 2B, Selection of Candidate sites January 1984.
- Final Evaluation Factors, Phase 2, Stage 2B, Selection of Candidate Sites, January 1984.
- Submissions: Phase 2, Stage 2A, General Overview Analysis, October 1983.

Documents from other agencies:

- The Niagara Escarpment Plan, Volumes 1, 2, 3, published by The Provincial Secretariat for Resources Development, July 1984.
- Interim Watershed Plan, Halton Region Conservation Authority, July 1983.
- Visitation Levels for Rattlesnake Point and Mount Nemo, Conservation Area, Letter from H.R.C.A., August 1984.

3.0 STUDY METHOD

The visual assessment was undertaken as follows:

1. Reports pertinent to the visual assessment of the landfill site were reviewed.

2. Maps and photo mosaics of the site were reviewed. These included Ontario Base Mapping at the scale of 1:10,000 from 1982 aerial photographs. The contour interval was 5 metres. A 1:10,000 photomosaic from the Ministry of Natural Resources, 1982, and 1:25,000 contour maps (ten foot contour intervals) were also used.

3. A preliminary site visit to familiarize the consultants with the candidate areas was undertaken in June. The majority of field work was undertaken fom August 15 to August 20. A final field check of results was conducted on September 21, 1984.

   The field work was conducted by two staff members and consisted of the following:

   a) A visit to each site including the taking of photographs.

   b) Identification of the woodlots and building locations on the site.

   c) Travelling all the roads adjacent to the site.

   d) Setting up visual targets (helium balloons) in areas where future heights of landfill could not be easily visualized.

   e) Establishing the visibility (visual isopleth) of each candidate area.

   f) Field checking results and taking of photographs.

4. The visible area was mapped.

5. Government agencies i.e., the Niagara Escarpment Commission and the Halton Region Conservation Authority were contacted to identify their visual concerns about the proposed site locations.

6. The consultant for social impact on the study team was contacted to identify areas of residents' concern. Comments taken from past study documents were used as an indication of public or individual concern for visual impacts in the area.

7. Utilizing photographs, topographic maps, and sections (horizontal scale of 1:10,000 and vertical scale of 1:2,000) the areas of high and medium to low visual impact were identified.

8. The visual impact areas were field checked and identified.

9. Each of the Candidate Site areas was assessed for visual impacts and ranked.

10. Site Plan Areas were compared to the Candidate Site area data and the implications of these smaller areas on visual impacts were identified.

11. Mitigative options for the sites were identified.

12. Each of the six sites was ranked according to visual impacts and opportunity for mitigation.

4.0 STUDY ASSUMPTIONS

To determine the visual impact of any given landfill site some assumptions on the degree of development that will take place due to landfilling must be made. In conjunction with the project co-ordinator, Walker Wright Young Associates Limited and other team members, the following assumptions were made.

1. The site has a setback of 100 metres (328 feet) to the toe of the slope.
2. The landfill height does not exceed 15 m (49 feet).
3. The slope of the sides of the landfill is a ratio of 4 horizontal to 1 vertical.
4. Based on points 2 and 3 the landfill would reach its maximum height 160 m from the boundary of the site.
5. For purposes of the visual assessment, it was assumed initially that the total area of each candidate site and, secondarily, that each Site Plan Area within the buffer zone would be subject to landfilling.
6. It was assumed that houses within the boundary of the Candidate Site and Site Plan Areas, including the buffer, will not remain and are therefore not identified.
7. Vegetation in the buffer area and woodlots adjacent to the site were considered as screening elements.
8. Vegetation on the area designated for landfill was not considered a visual screen to that site, since it may be removed as part of the landfilling process.
9. Woodlots on adjacent properties were considered screening elements.
10. Sparse stands of vegetation or single trees were not considered effective screening elements because of reduced screening potential in winter.

4.1 Definition of Key TErms

. High Visual Impact is the degree of change in a particular view. High visual impacts are usually associated with Candidate Sites that are not screened by vegetation or topography. High visual impacts usually occur in close proximity to a Candidate Site.

. Medium to Low Visual Impacts are a designation which recognizes the visual gradient experienced primarily over distance and influenced by other factors. The medium to low area commences where the view onto the Candidate Site and Site Plan Areas is apparent but only occupies a small portion of the total view due to orientation, screening, topography, or distance.

. Designated Viewing Areas are areas regionally/provincially identified as viewing areas or are documented in reports and are known and used by the public as lookouts. These areas will usually have facilities such as trails, parking lots, etc. which reinforce the opportunities for viewing.

. Major Roadways correspond to functional classifications of major roads in the Regional Plan for Halton and include Provincial Highways (controlled and free access) and primary arterials. Primary arterials and provincial highways are classified and assumed to carry more traffic than secondary arterials and therefore sites adjacent to these roadways will potentially impact more people.

. Secondary Roadways include secondary arterials and lower capacity roads.

5.0 EVALUATION OF CANDIDATE SITE AREAS

CANDIDATE SITE A (Map 1)

Visual Character

Candidate Site A is rural in character, consisting of open fields and two woodlots approximately 4 ha each. The site is to the north east of a small settlement at the junction of Trafalgar Road and Burhamthorpe Road. The site has numerous homes on its southern boundary. The Trafalgar Hydro Transmission station is north of the site with the transmission corridor running east and west. The east side of the site is adjacent to the 9th line and Highway 403.

The site area has elevations varying from 188.0 m at the northwestern corner along Trafalgar Road to just west of Ninth Line (a difference of 9 metres, slope is less than 1% across the entire site). The site is visually flat with some minor relief which can be perceived by the area's microdrainage. The major visual issues as expressed by residents in the area are:

1. The change in rural character.
2. Visual impact on residents close to the site.
3. The visual impacts on Trafalgar Road which is considered by residents as the "gateway to Oakville".
4. The proposed changes to Highway 403 (elevation of roadway) would make Site A more visible from that road and raised interchange.
5. The impacts on Burnhamthorpe Road which is used by joggers and walkers.

Limit of Visibility

Candidate Site A has total area of visibility of 1064 ha (including the site area itself). The average length of view to the site from the surrounding area is 1.0 kilometres. The site is visually contained by vegetation (woodlots) on the west and south sides of the site and by changes in elevation on the north and east sides of the site.

Designated Viewing Areas

There are no designated lookouts or viewing areas within the limits of visibility of the site.

Areas of High Visual Impact

The areas of highest visual impact are as follows:

Residential

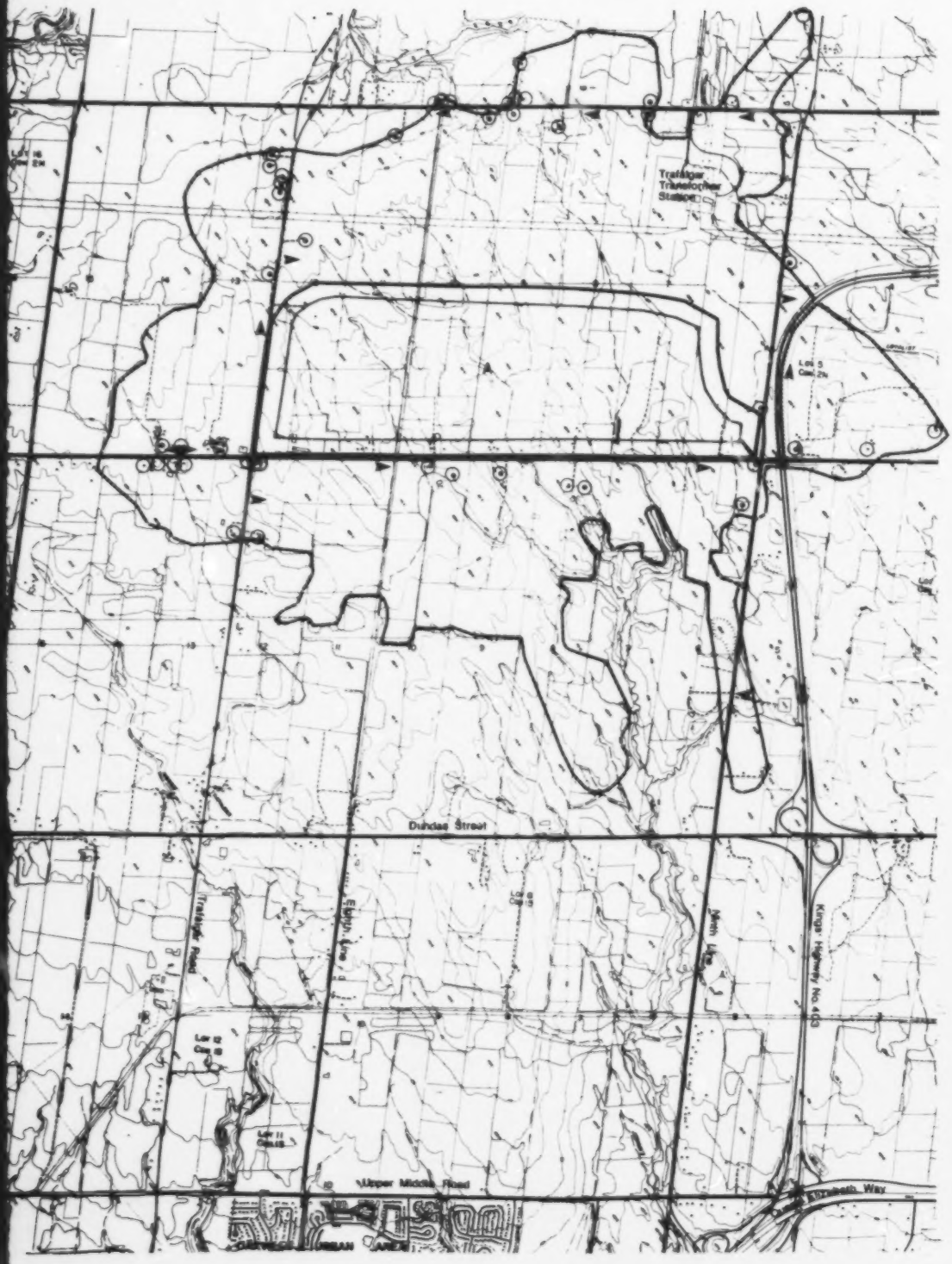
(calculated from Ontario Base Maps, Air Photographs and land use information taken from land use information by Walker, Wright, Young)

1. Six residences north of Burnhamthorpe along Trafalgar, five on the west side, one on the east.
2. Two residences south of Burnhamthorpe on Trafalgar Road, one on the west side, one on the east side.
3. Four residences south of Lower Baseline Road between Trafalgar Road and Ninth Line.
4. Two residences north of Burnhamthorpe Road, one on the west side of Ninth Line, the other on the east side.
5. Two residences south of Burnhamthorpe Road on the west side of Ninth Line, one on the east side and one on the west.
6. Four residences on Burnhamthorpe Road west of Trafalgar Road, two on the north side and one to the south.
7. Eight residences along south side of Burnhamthorpe Road between Trafalgar Road and Ninth Line.
8. One residence on the north side of Burnhamthorpe Road east of Ninth Line.

Major Roads

1. 2.25 kilometres along Trafalgar Road.
2. 1.0 kilometre along Highway No. 403.
3. When future extension of Highway No. 403 is built along the north side of Site A, another 3.4 kilometres will be in close proximity to the site.

Lower Base Line
Bethesda Road
Fourth Line Road
Kings Highway No. 5
Dundas Street
Sixth Line
Trafalgar Road
Eighth Line
Upper Middle Road



MAP 1

LEGEND

- Candidate Site
- Buffer Area (100m)
- Limit of Visibility

AREAS OF HIGHEST VISUAL IMPACTS

- Residences
- Other Land Use
- Major Roads
- Secondary Roads
- Designated Viewing Areas

AREAS OF MEDIUM TO LOW VISUAL IMPACTS

- Residences
- Cluster of Residences
- Major Roads
- Secondary Roads

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PHASE 2, STAGE 2C
SELECTION OF PREFERRED SITE

ENVIRONMENTAL ASSESSMENT OF THE LANDFILL COMPONENT OF HALTON'S SOLID WASTE MANAGEMENT SYSTEM

Scale

N

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Secondary Roads

1. 3.95 kilometres along Burnhamthorpe Road

2. 2.15 kilometres along Ninth Line

Land Use

. Commercial area at the corner of Burnhamthorpe and Trafalgar Road.

. Cemetery located along Ninth Line

Areas of Medium-Low Visual Impacts

The major areas of medium to low impact are as follows:

Residential

1. Four residences along the south side of Burnhamthorpe Road west of Trafalgar Road

2. Nine residences along Lower Baseline Road between Trafalgar Road and Ninth Line

3. One residence north of Lower Baseline on the west side of Ninth Line

4. Two residences along Burnhamthorpe Road east of Ninth Line

5. One residence north of Burnhamthorpe on the west side of Ninth Line

6. One residence on Ninth Line south of Burnhamthorpe Road.

Major Roads

None.

Secondary Roads

4.5 kilometres along Burnhamthorpe Road
1.5 kilometres along Lower Baseline Road

CANDIDATE SITE B (Map 2)

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Visual Character

Candidate Site B is rural in character. The site is bounded on the north by Burnhamthorpe Road, to the east by Trafalgar Road, to the southeast by

Highway 5, to the south and southwest by agricultural land and to the west by 6th Line. There are a number of residences along all its boundaries with the greatest density of population of households found on the north, east and south sides. There are 3 major woodlots central to the site. Site elevations vary from 189 m near the junction of Trafalgar and Burnhamthorpe Roads to 169 m northwest of Trafalgar Road and Dundas Street (a difference of 20 metres or 1% across the site). The site is most elevated in the northeast and lowest in the southeast. The major visual issues expressed by residents in the area are:

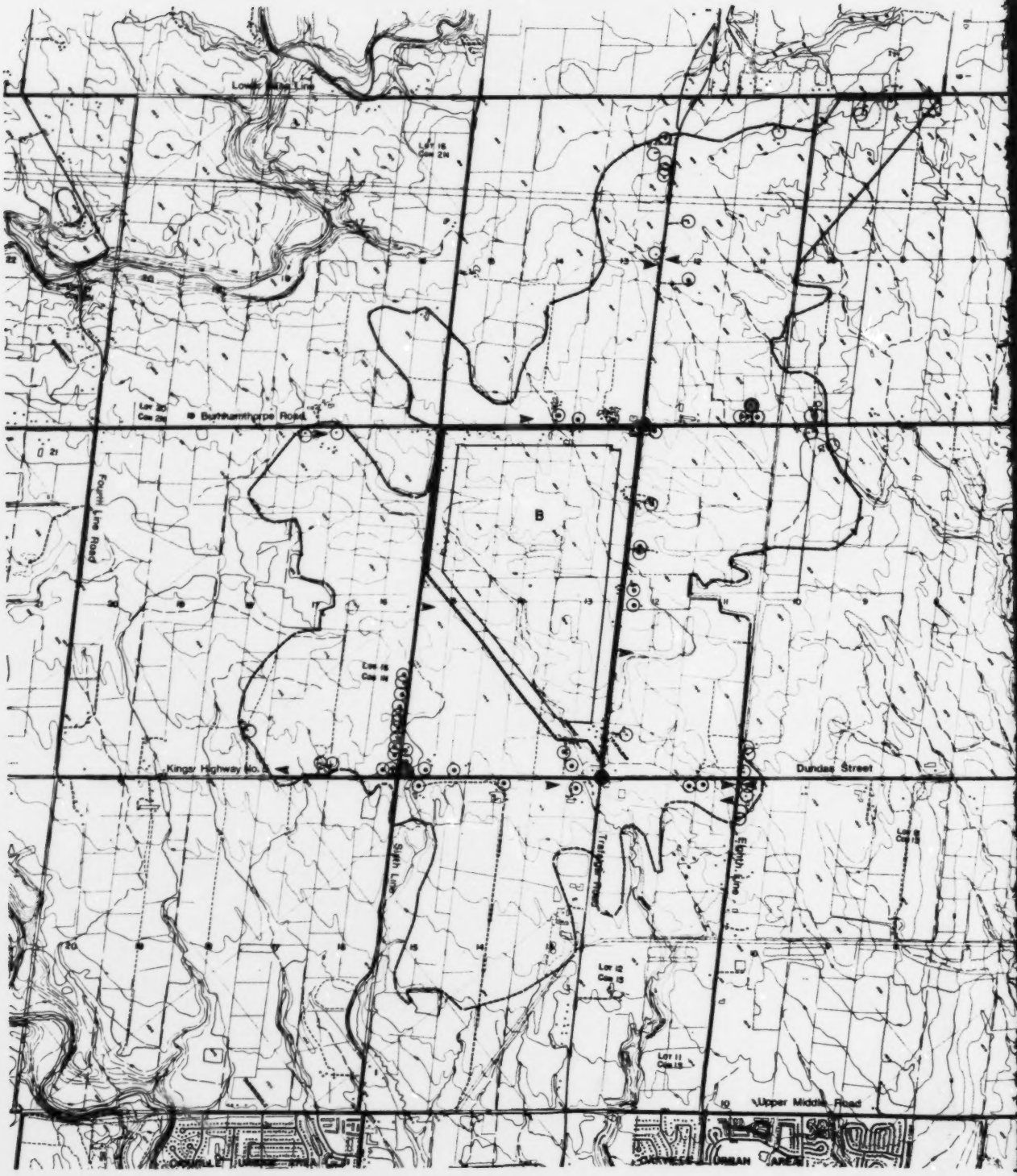
1. The change in rural character.
2. The impact on residents close to the site.
3. The impacts on Trafalgar road which is seen as the "gateway to Oakville".
4. The impacts on Burnhamthorpe Road which is used by joggers and walkers.

Limit of Visibility

Candidate Site B has a limit of visibility of 1097 ha (including the site area). The average length of view from the surrounding area is 1.1 kilometres with the longest sightlines north of the site along Trafalgar Road and south of the site between Trafalgar Road and Sixth Line. The site is intermittently visually screened by woodlots to the northwest, east and southeast of the site.

Designated Viewing Areas

There are no designated lookouts or viewing areas within the limits of visibility of the site.


Lower Base Line
Lot 15
Con 2N
Lot 20
Con 2W
Bethesda Road
Fourth Line Road
B
Kings' Highway No. 5
Dundas Street
Sixth Line
Trafalgar Road
Eighth Line
Lot 11
Con 15
Upper Middle Road
OAKVILLE URBAN AREA
OAKVILLE URBAN AREA

MAP 2

LEGEND

- Candidate Site
- Buffer Area (100m)
- Limit of Visibility

AREAS OF HIGHEST VISUAL IMPACTS

- Residences
- Other Land Use
- Major Roads
- Secondary Roads
- Designated Viewing Areas

AREAS OF MEDIUM TO LOW VISUAL IMPACTS

- Residences
- Cluster of Residences
- Major Roads
- Secondary Roads

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SELECTION OF PREFERRED SITE

ENVIRONMENTAL ASSESSMENT OF TH
LANDFILL COMPONENT OF HALTON'S
SOLID WASTE MANAGEMENT SYSTEM

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Areas of High Visual Impact

Residential

1. Three residences north and adjacent to the site along Burnhamthorpe Road.

2. One residence adjacent to the site south of Burnhamthorpe Road at the northeast corner of the site.

3. Two residences south of Burnhamthorpe Road across Trafalgar Road and adjacent to the northeast corner of the site.

4. Three residences along the north of Burnhamthorpe east of Trafalgar Road.

5. One residence north of Burnhamthorpe Road on the east side of Trafalgar Road.

6. Six residences adjacent to the east side of the site along Trafalgar Road.

7. Four residences north of Highway 5 between Sixth Line and Trafalgar Road.

8. Three residences south of Highway 5 between Sixth Line and Trafalgar Road.

9. Two residences on the east side of Sixth Line between Highway 5 and Burnhamthorpe.

10. Two residences east of Trafalgar Road, both south of Highway 5.

11. Eleven residences along Sixth Line between Highway 5 and Burnhamthorpe Road.

12. One residence just west of Sixth Line along the north side of Highway 5.

Major Roads

1. 3.5 kilometres of Trafalgar Road.

2. 2.3 kilometres of Highway 5.

Secondary Roads

1. 3.0 kilometres of the Sixth Line.
2. 2.1 kilometres of Burnhamthorpe Road.

Land Use

1. The commercial area at the corner of Trafalgar Road and Burnhamthorpe Road.

2. The commercial area at the corner of Highway 5 and Trafalgar Road.

3. Munn's Church at the corner of Sixth Line and Highway 5.

Areas of Medium to Low Visual Impacts

The areas of medium to low impacts are:

Residential

1. Two residences west of Sixth Line on the south side of Burnhamthorpe Road.

2. Seven residences on Trafalgar Road north of Burnhamthorpe, six on the east side of the road and one on the west side.

3. Three residences on the south side of Lower Base Line between Trafalgar Road and Ninth Line.

4. Three residences on Burnhamthorpe Road, east of Trafalgar Road, one on the south, two on the north.

5. Four residences on Highway 5 west of Sixth Line.

6. Three residences on the north side of Highway 5 east of Eighth Line.

7. Six residences to the south of Highway 5 east of Eighth Line.

8. The north side of two apartment buildings along Trafalgar Road, approximately 3 km from the south end of the site. The apartments are not shown on the map.

Major Roads

1. 0.80 kilometres of Trafalgar Road
2. 0.35 kilometres of Highway 5

Secondary Roads

1. 0.60 kilometres of Burnhamthorpe Road.
2. 0.45 kilometres of Eighth Line.

Land Use

1. Seymour Art Studio

CANDIDATE SITE C (Map 3)

Visual Character

The visual character of Site C is rural. There is vegetation on this site which screens views across the site. The elevation of the site ranges from 186 m in the centre of the site to an elevation of 170 m found on the east side of the site along a stream bed. The site is visually flat (one percent slope). The site is adjacent to four roadways: Trafalgar Road, Burnhamthorpe, Ninth Line and Highway 5. The majority of the site is adjacent to Trafalgar and Burnhamthorpe Roads. The west side of the site is adjacent to two small commercial areas, one at the junction of Trafalgar and Burnhamthorpe Roads, the second at Trafalgar Road and Highway 5. The majority of residences adjacent to the site are located along Trafalgar and Burnhamthorpe Roads. The major visual issues expressed by residents in the area are:

1. The change in rural character.
2. The impacts on residents close to the site.
3. The impacts on Trafalgar Road which is seen as the "Gateway to Oakville".
4. The impacts on Burnhamthorpe Road which is used by joggers and walkers.

Limit of Visibility

The area of visibility around the site is 1671 hectares with the average length of view to the site approximately 1.2 kilometres. The longest views to the site are from the north and south with the western side of the site being visually contained by woodlots and the eastern side being influenced by a drop in elevation east of Highway 403. Views are also restricted to the southeast of the site at the junction of Ninth Line and Highway 5. Here there are only intermittent views of the site due to scrub vegetation.

Designated Viewing Areas

There are no designated viewing areas within the limits of visibility.

Areas of High Visual Impacts

The areas of highest visual impact are as follows:

Residential

1. Eight residences on Burnhamthorpe Road west of Trafalgar. Three on the north side and five on the south side.

2. Twelve residences on Burnhamthorpe Road between Trafalgar Road and Ninth Line. Two are on the south side at the junction of Trafalgar and Burnhamthorpe Roads, while ten are on the north side distributed along the entire length of road.

3. One residence on Burnhamthorpe Road east of Highway No. 403 on the north side.

4. Two residences on Ninth Line north of Burnhamthorpe Road.

5. Two residences on Ninth Line south of Burnhamthorpe Road.

6. Two residences on Trafalgar north of Burnhamthorpe Road on the east side, and one on the west.

7. Seven residences on the west side of Trafalgar Road between Burnhamthorpe Road and Highway 5.

8. Seven residences on Highway 5 east of Trafalgar Road, two on the north side of Highway No. 5 and five on Eighth Line.

9. Four residences on Highway 5 west of Trafalgar Road. Two are on the north side of the road and two are on the south side.

Major Roads

1. 3.65 kilometres of Trafalgar Road.
2. 1.45 kilometres of Highway 5.
3. 0.70 kilometres of Highway 403.
4. 0.20 kilometres of Eighth Line.

Secondary Roads

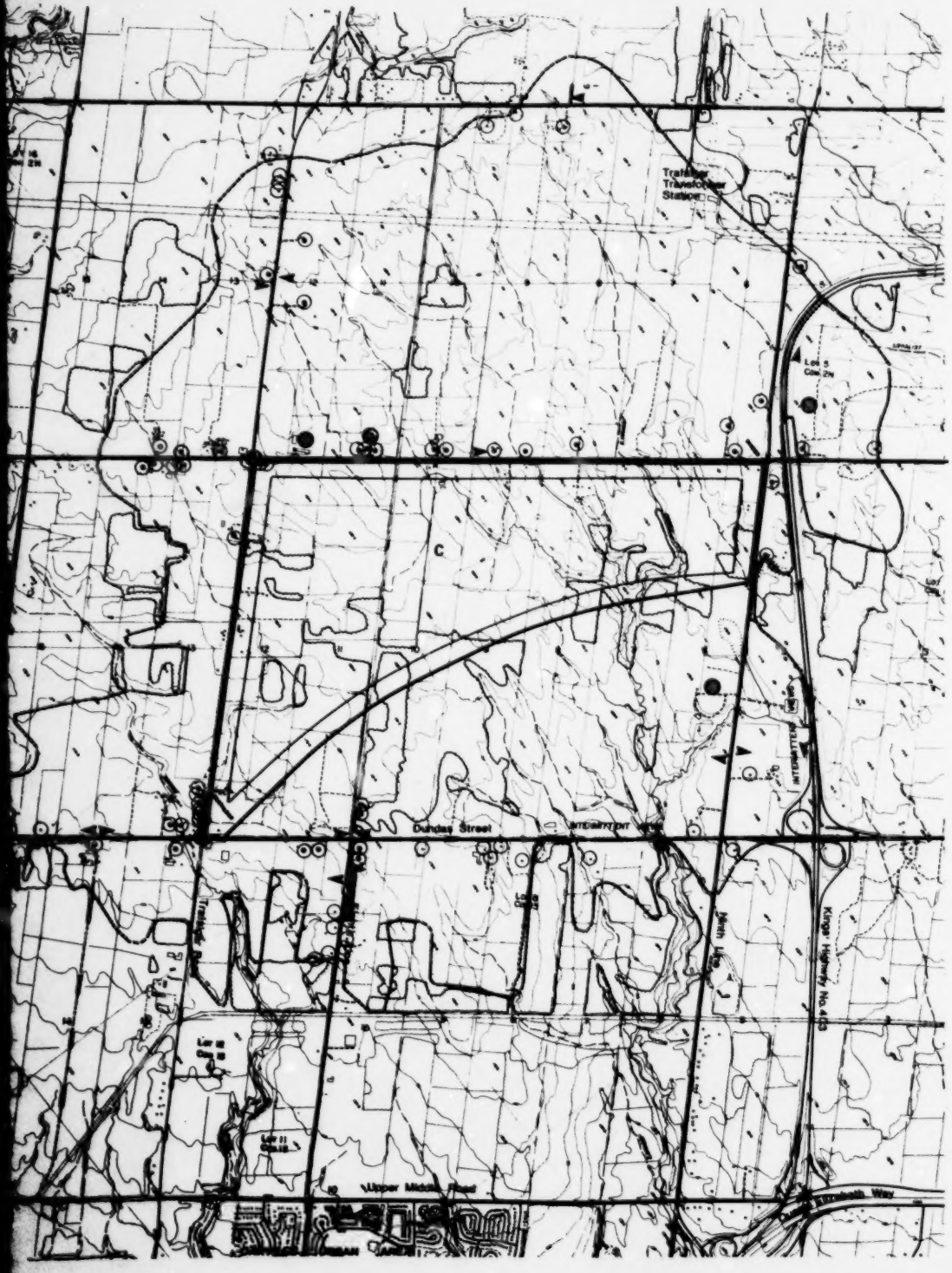
1. 4.25 kilometres of Burnhamthorpe Road.
2. 2.70 kilometres of Ninth Line.
3. 0.50 kilometres of Eighth Line.

Land Use

1. Commercial areas at the junction of Highway 5 and Trafalgar Road

2. The commercial area at the junction of Trafalgar Road and Burnhamthorpe Road.

Lower Base Line
Lot 16
Con 2N
Lot 20
Con 2N
Burnhamthorpe Road
Fourth Line Road
Kings Highway No. 5
Dundas Street
Sixth Line
Trafalgar Road
Lot 11
Con 1S
Upper Middle Road



MAP 3

LEGEND

- Candidate Site
- Buffer Area (100m)
- Limit of Visibility

AREAS OF HIGHEST VISUAL IMPACTS

- Residences
- Other Land Use
- Major Roads
- Secondary Roads
- Designated Viewing Areas

AREAS OF MEDIUM TO LOW VISUAL IMPACTS

- Residences
- Cluster of Residences
- Major Roads
- Secondary Roads

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SELECTION OF PREFERRED SITE

ENVIRONMENTAL ASSESSMENT OF THE LANDFILL COMPONENT OF HALTON'S SOLID WASTE MANAGEMENT SYSTEM

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3. The Welding Institute along Burnhamthorpe Road.

4. A proposed elevated interchange at 403 will make the site more visible.

5. The cemetery on Ninth Line. (Glen Oaks Memorial Gardens)

Areas of Medium to Low Visual Impacts

Residential

The areas of medium to low impacts are as follows:

1. Five residences on Trafalgar Road north of Burnhamthorpe Road, four on the west side of the road and one on the east.

2. Three residences south of Lower Base Line between Trafalgar Road and Ninth Line.

3. One residence on Burnhamthorpe Road east of Ninth Line.

4. One residence on Ninth Line just north of Highway 5.

5. Eight residences on Highway 5 between Trafalgar Road and Highway 403 interchange.

6. Twelve residences on the Eighth Line south of Highway 5. Eight of these are located on the east side of the road and four on the west.

7. Two residences on Highway 5, between Trafalgar Road and Sixth Line. Both are on the north side.

8. The north side of two apartment buildings (balconies and windows) along Trafalgar Road, approximately 3 km from the site.

Major Roads

1. 3.25 kilometres of intermittent views along Highway 5.
2. 1.8 kilometres of intermittent views along Highway 403.
3. 0.7 kilometres of Trafalgar Road.

Secondary Roads

1. 0.7 kilometres along Lower Baseline.
2. 0.8 kilometres along Ninth Line.

CANDIDATE SITE D (Map 4)

Visual Character

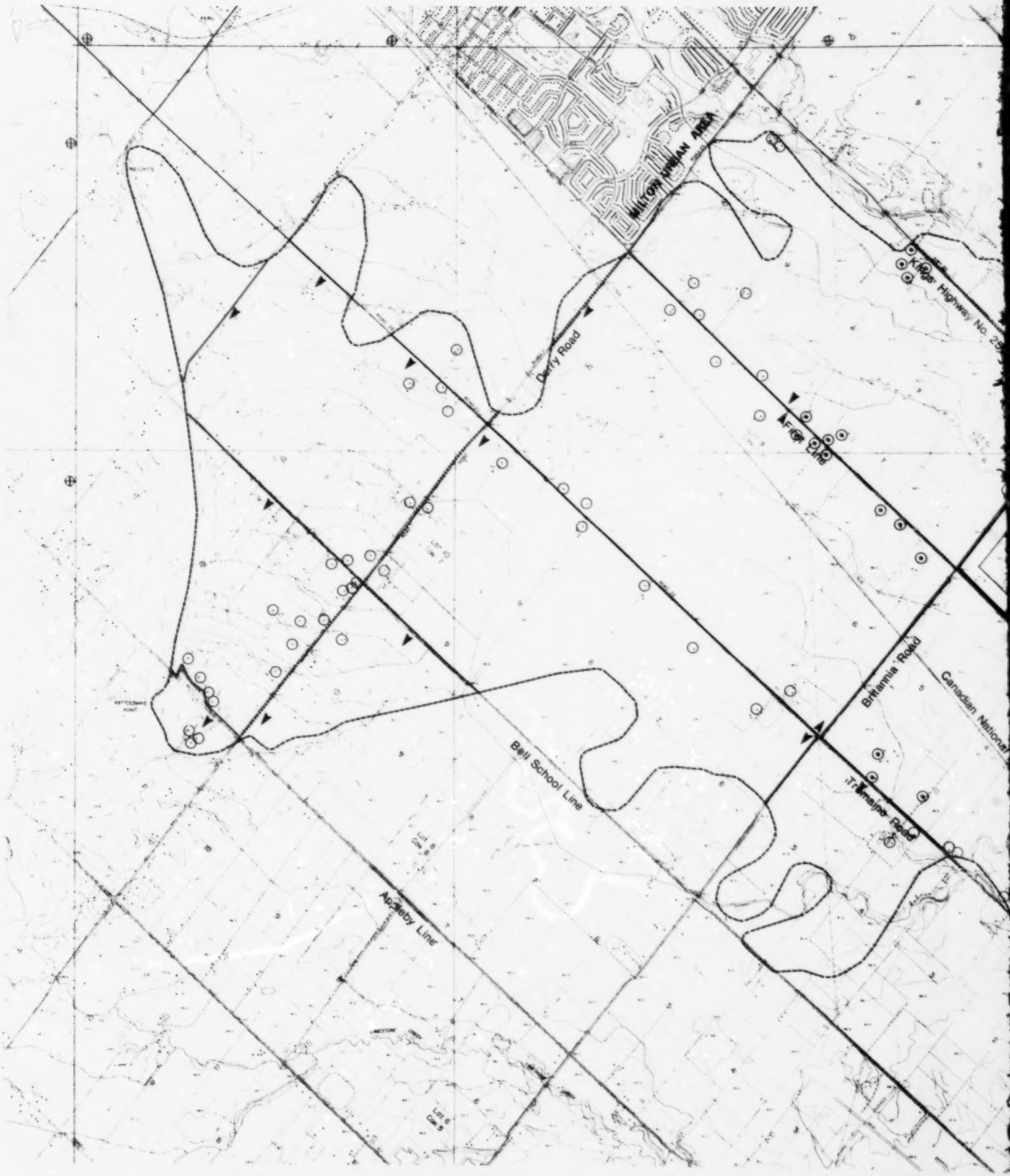
Candidate Site D is located on the southeast corner of Highway 25 and Britannia Road. The site is within six kilometres of the Niagara Escarpment which lies to the west and northwest of the site. The site is rural in character, with very little change in elevation within its boundaries, (186m at the southeast corner and 183m in the centre, a difference of only 3 metres). There is a small woodlot at the southern boundary of the site. There are rural residences and farms surrounding the site. The visual issues expressed by residents are:

1. The impacts on residences surrounding the site.
2. The change in the rural character of the area.
3. The impacts on views to and from the Niagara Escaprment particularly two designated provincially significant viewing areas at Mount Nemo and Rattlesnake Point.
4. The impacts on Highway 25 and local roads such as Tremaine Road which lead to the Escarpment, recreation areas, and the Town of Milton.
5. The impacts on local "U-Pick-It" farms in the area.

Limit of Visibility

Candidate Site D has a large area of visibility due to the flatness of the surrounding landscape, the higher elevation associated with the Niagara Escarpment, and the lack of large blocks of vegetation such as woodlots around the site. The exception to this is the vegetation along Sixteen Mile Creek.

The area of visibility of the site is 3324 hectares with the average length of view to the site being 2.2 kilometres. Views to the site are longest to the northwest and west along the Niagara Escarpment. The site is visually contained in the south by small woodlots and a change in elevation and to the east by the vegetation along Sixteen Mile Creek.


HAMILTON URBAN AREA
Derry Road
Britannia Road
Bell School Line
Appleby Line
Trafalgar Road
Canadian National

MAP 4

LEGEND

- Candidate Site
- Buffer Area (100m)
- Limit of Visibility

AREAS OF HIGHEST VISUAL IMPACTS

- Residences
- Other Land Use
- Major Roads
- Secondary Roads
- Designated Viewing Areas

AREAS OF MEDIUM TO LOW VISUAL IMPACTS

- Residences
- Cluster of Residences
- Major Roads
- Secondary Roads

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PHASE 2, STAGE 2C
SELECTION OF PREFERRED SITE

ENVIRONMENTAL ASSESSMENT OF THE LANDFILL COMPONENT OF HALTON'S SOLID WASTE MANAGEMENT SYSTEM

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Designated Viewing Areas

The site can be seen from two provincially designated viewing areas along the Niagara Escarpment. These are Mount Nemo Conservation Area to the west of the site (6 kilometres away), and Rattlesnake Point Conservation Area (5.5 kilometres away). Each of these areas have established viewing points which provide views over the site. The Halton Region Conservation Authority estimates that Rattlesnake Point is visited by 30,000 or more visitors per year and that Mount Nemo attracts approximately 10,000 visitors per year.

Areas of High Visual Impact

The following are areas of highest visual impact:

Residential

1. Nine residences on Highway 25 between Britannia Road and Derry Road; five are to the west side of the highway, four are to the east.

2. Fourteen residences on Highway 25 between Britannia Road and Lower Base Line, four west of the Highway, ten to the east.

3. Thirteen residences on Lower Base Line between Highway 25 and First Line, seven on the north side of the road, six on the south.

4. Two residences on Henderson Road, one to the west side of the road and one to the east.

5. Seventeen residences on First Line between Lower Base Line and Britannia Road, twelve to the west side of the road, five to the east.

6. Eight residences on First Line between Britannia and Derry Road, five on the west side, three on the east.

7. Four residences on Britannia Road East of Highway 25.

8. Three residences on Tremaine Road, south of Brittania.

Major Roads

4.65 kilometres along Highway 25. Motorists would not only see the site but have portions of views to the Niagara Escarpment obscured.

Secondary Roads

1. 4.65 kilometres along First Line.
2. 3.15 kilometres along Brittania Road.

Land Use

1. St. Clair Masonic Temple

Areas of Medium to Low Visual Impacts

The areas of medium to low visual impacts are:

Residential

1. Six residences on Highway 25, north of Brittania Road, two on the east side of the highway, and four on the west side.

2. One residence on Highway 25 south of Lower Baseline, on the east side of the highway.

3. Eight residences on Henderson Road south of Lower Baseline, two on the west side of the road, six on the east side.

4. Two residences on Lower Baseline Road east of First Line.

5. Twenty-two residences on Tremaine Road between Lower Baseline and Derry Road, ten on the east side of the Road and twelve on the west side.

6. Two residences on Tremaine Road south of Lower Base Line, four residences on the south side of Derry Road west of the Appleby line.

7. North of Derry Road from Highway 25 to the Appleby Line, there are 40+ residences from which the site can be seen due to the higher elevation of the Escarpment. There are also portions of the Town of Milton in which residents may see the site from second story residences or from apartments.

8. On the Guelph Line below Mount Nemo there are twenty-eight residences from which the site can be seen.

9. There are also portions of Town of Milton apartments and second storey residences from which the site can be seen.

Major Roads

1. 0.88 kilometres of Highway 25.
2. 4.0 kilometres of Derry Road.

Secondary Roads

1. 1.65 kilometres of Lower Baseline Road.
2. 0.70 kilometres of Henderson Road.
3. 1.45 kilometres of First Line.
4. 7.10 kilometres of Tremaine Road.
5. 2.75 kilometres of Bell School Line.
6. 0.65 kilometres of Appleby Line.
7. 1.30 kilometres of Guelph Line.
8. 1.00 kilometres of No. 14 Sideroad

Land Use

1. Milton District Hospital.

2. "U-Pick-It" Farms and Orchards on the Escarpment.

CANDIDATE SITE E (Map 5)

Visual Character

Candidate Site E is located on the northwest corner of Tremaine and Britannia Roads. The site is rural in character, containing two large woodlots, one on the central west side of the site, the other on the southern boundary. The site is in close proximity to the Niagara Escarpment which lies directly north and southwest of the site. The site is visually flat with little change in elevation, the high point located on the northeast side of the site next to Tremaine Road at 188.3 and the lowest point 182 m at the southern boundary in the woodlot. The visual issues as expressed by residents are:

1. The impacts on local residences surrounding the site.

2. The impacts on views to and from the Niagara Escarpment, particularly from Rattlesnake Point and Mount Nemo Conservation areas.

3. The change in rural character of the area.

4. The impacts on the local views from local roads which pass by the site on the way to the Escarpment, recreation areas and the Town of Milton.

5. The impacts on local "U-Pick-It" farms in the area.

Limit of Visibility

Site E has a large area from which the site is visible. The limit of visibility is 2895 hectares with an average length of view 2.0 kilometres.

The longest views to the site are found on the north and east sides of the site, with the south and west being contained by vegetation and lower elevations associated with Bronte Creek. The site is visually accessible from the Escarpment and in particular the two conservation areas, Rattlesnake Point and Mount Nemo.

Designated Viewing Areas

The site can be seen from two provincially designated viewing areas along the Niagara Escarpment. These are Mount Nemo and the Rattlesnake Point Conservation areas. Both these sites have viewing areas from which Site E can be seen. The site is approximately 2.25 kilometres from the Rattlesnake Point Conservation Area and 3.0 kilometres from the viewing area at Mount Nemo Conservation Area.

The Halton Region Conservation Authority has estimated there are over 30,000 visitors per year to Rattlesnake Point and approximately 10,000 per year at Mount Nemo.

Areas of High Visual Impact

The following are the areas of highest visual impacts.

Residential

1. Eight residences on the west side of First Line between Derry Road and Britannia Road.
2. Five residences on Tremaine Road south of Britannia Road, two to the west and three to the east.
3. Four residences on Tremaine Road between Derry Road and Britannia Road, three on the east side of the road, one on the west.

Derry Road
Britannia Road
Bell School Line
Anderson Line
E

MAP 5

LEGEND

- Candidate Site
- Buffer Area (100m)
- Limit of Visibility

AREAS OF HIGHEST VISUAL IMPACTS

- Residences
- Other Land Use
- Major Roads
- Secondary Roads
- Designated Viewing Areas

AREAS OF MEDIUM TO LOW VISUAL IMPACTS

- Residences
- Cluster of Residences
- Major Roads
- Secondary Roads

Map Information Compiled By:
The Landplan Collaborative Ltd.

PHASE 2, STAGE 2C
SELECTION OF PREFERRED SITE

ENVIRONMENTAL ASSESSMENT OF THE LANDFILL COMPONENT OF HALTON'S SOLID WASTE MANAGEMENT SYSTEM

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4. Four residences on Tremaine Road north of Derry, three on the west side of the road and one on the east side.

5. Eight residences on Bell School Line, between Derry Road and Britannia Road, six on the west side of the road, and two on the east side of the road.

6. Five residences on Bell School Line north of Derry Road, four on the west side of the road and one on the east side.

7. One residence on Bell School Line south of Britannia Road on the east side of the road.

8. Three residences on the Appleby Line between Derry Road and Britannia Road, all on the east side.

9. Sixteen residences on Derry Road between the Appleby Line and First Line, five on the south side of the road and eleven on the north side.

10. Six residences on Britannia road between Appleby Line and Tremaine Road. Three are on the south side of the road and three are on the north side.

Major Roads

1. 2.90 kilometres of Derry Road.

Secondary Roadways

1. 5.30 kilometres of Tremaine Road. Motorists' views of the Niagara Escarpment will be obscured by the landfill.

2. 4.20 kilometres of Bell School Line.

3. 4.20 kilometres of Britannia Road. Motorists' views of the Escarpment will be obscured by the landfill.

Land Use

1. The Milton District Hospital.

2. The industrial/commercial corner of Derry Road and First Line.

3. The "U-Pick-It" farms on Escarpment.

Areas of Medium to Low Visual Impacts

The areas of medium to low visual impacts are:

Residential

1. Seven residences along Highway 25 between Britannia Road and Derry Road, five on the west side of the road and two on the east side.

2. Ten residences on First Line between Derry Road and Lower Base Line, eight along the east side, one on the west side.

3. Seven residences on Tremaine Road between Britannia and Lower Base Line, three are on the west side of the road and four are on the east side.

4. Five residences on Appleby Line south of Derry Road and north of Lower Base Line, two are on the west side of the road and three are on the east.

5. North of Derry Road from Highway 25 to the Appleby Line. There are 30+ residences from which the site can be seen due to the higher elevation of the Escarpment.

   There are also portions of the Town of Milton apartments and second storey residences from which the site can be seen.

6. On the Guelph Line below Mount Nemo there are over 28 residences from which the site can be seen.

Major Roads

1. 0.70 kilometres of Derry Road.

2. 0.90 kilometres of Highway 25.

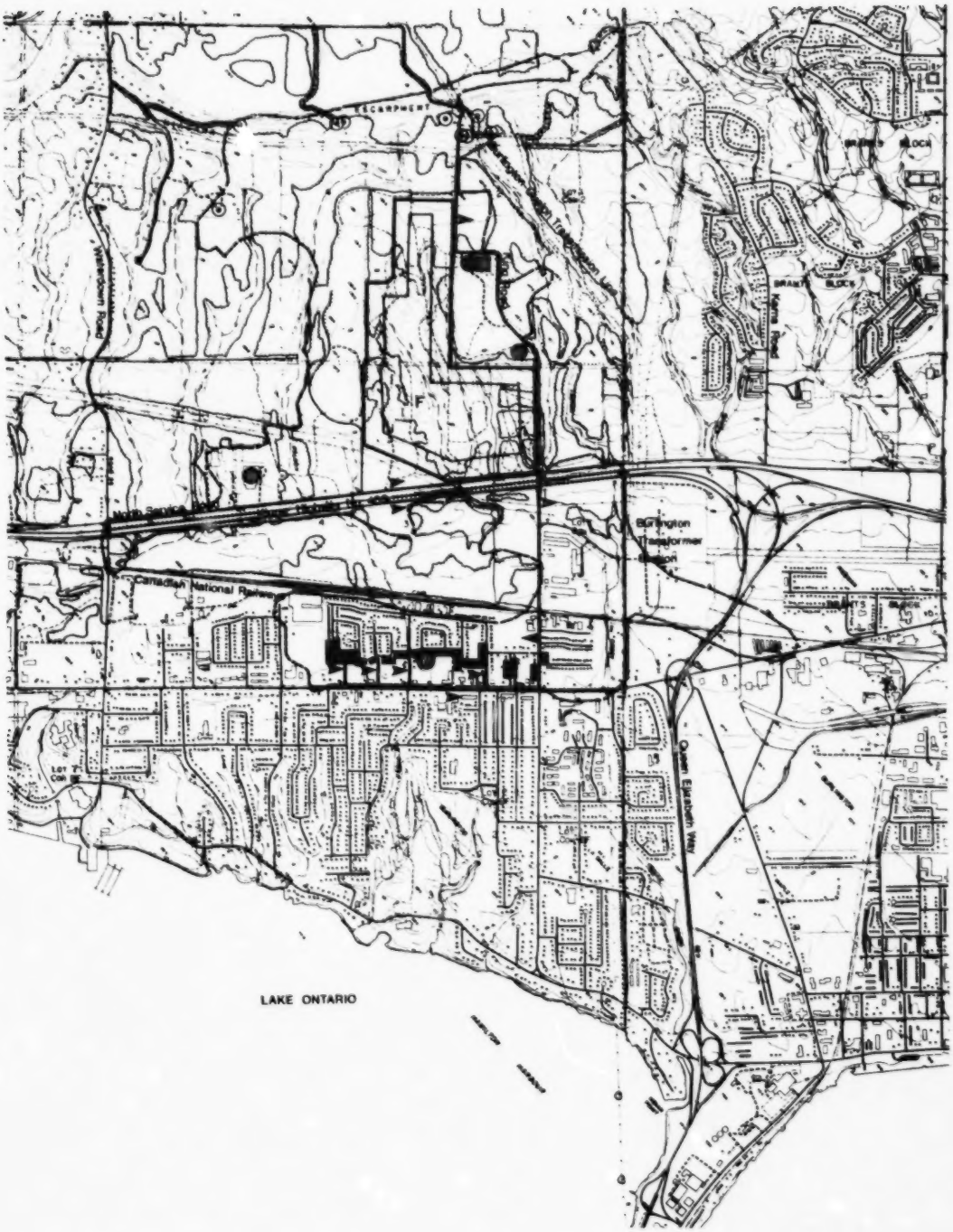
Secondary Roads

1. 4.25 kilometres of First Line.
2. 0.75 kilometres of Britannia Road.
3. 1.30 kilometres of Tremaine Road.
4. 0.85 kilometres of #14 Sideroad.
5. 1.45 kilometres of Bell School Line.
6. 2.45 Kilometres of Appleby Line.
7. 1.30 kilometres of Guelph Line.

CANDIDATE SITE F (Map 6)

Visual Character

Candidate Site F is in Burlington at the junction of the North Service Line and King's Road. The site is at the base of the Escarpment and has elevations from 115 m at the Service Road to 188 m at the highest point of the site. This is a change in elevation of 73 metres over approximately 1.5 kilometres which indicates an average slope of 5% across the site. Local



MAP

LEGEND

— Candida

— Buffer

— Limit of

AREAS OF H

Residen

Other L

Major R

Second

Designa

AREAS OF M

Residen

Cluster

Major R

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MAP 6

LEGEND

- Candidate Site
- Buffer Area (100m)
- Limit of Visibility

AREAS OF HIGHEST VISUAL IMPACTS

- Residences
- Other Land Use
- Major Roads
- Secondary Roads
- Designated Viewing Areas

AREAS OF MEDIUM TO LOW VISUAL IMPACTS

- Residences
- Cluster of Residences
- Major Roads
- Secondary Roads

Map Information Compiled By:
The Landplan Collaborative Ltd.

PHASE 2, STAGE 2C
SELECTION OF PREFERRED SITE

ENVIRONMENTAL ASSESSMENT OF THE LANDFILL COMPONENT OF HALTON'S SOLID WASTE MANAGEMENT SYSTEM

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elevation differences and intermittent streams make the site highly dissected with some slopes of over 15%. The site is vegetated over approximately 30% of its area. The site is adjacent to the existing Burlington Landfill site. Heavy use of the site by trail bikes has created numerous trails and has damaged vegetation. While the site cannot be considered pristine, it is more natural in character than the other candidate sites. The following are visual issues the residents considered important:

1. The impact on local residents surrounding the site.
2. The obstruction of views to the Escarpment.
3. The obstruction of views from Bayview Park.
4. Views to the site from Aldershot.
5. Visual impacts to King's Road.
6. The additional impact of another landfill may create an even larger visual impact.

Limit of Visibility

The site has a limit of visibility of 505 hectares with an average length of views of 0.9 kilometres. However, because of its location at the base of the Escarpment, it is difficult to calculate all the areas the site can be seen from. The site is visible from as far away as the Burlington Skyway (18 kilometres) and can be seen from numerous tall buildings in Burlington and by boaters on Burlington Bay.

Designated Viewing Areas

While the Escarpment itself is considered an important visual resource, there are no provincially designated lookouts near Site F. Bayview Park, however, affords the public an opportunity to utilize the land for recreation and views. It will be considered a public viewing area for this report.

Areas of High Visual Impact

The areas of highest visual impact are:

Residential

1. Nine residences surrounding the north end of Site F.

Major Roads

1. 2.85 kilometres of Highway 403.
2. 1.70 kilometres of Plains Road.

Secondary Roads

1. 2.80 kilometres of the North Service Road.
2. 2.50 kilometres of Kings Road.
3. 1.00 kilometres of sideroads off Plains Road.

Land Use

1. Bayview Park.
2. Burlington Rod and Rifle Club.

Areas of Medium to Low Visual Impacts

The areas of medium to low impacts are:

Residential

1. Houses and apartments facing north along Plains Road, Warwick Road, etc. The site can be seen from 150+ residences.

Major Roads

None

Secondary Roads

None

Land Use

1. View from recreation areas such as Burlington Bay.
2. Commercial areas along Plains Road.
3. School off Plains Road.
4. Burlington Skyway Bridge.
5. Boaters in the Bay.

6.0 COMPARISON OF CANDIDATE SITES

Visual Character

Five of the six sites are rural in character (A,B,C,D,E). Site F, while suffering from heavy trail bike use, is the most natural. Sites B, D, E have the most agricultural activity while Sites A and C have agriculture and a variety of other land uses.

Visibility/Length of View

The visibility varies on all six sites. The site which has the greatest degree of visibility is Site F. Only a small local boundary could be mapped. This is the result of the site being elevated at the base of the Escarpment and visible to a large portion of Burlington.

Similarly, Sites D and E were very visible sites due to the proximity of the Niagara Escarpment. Sites A, B, and C vary slightly but are essentially the same.

Numbers of Residences

Any residents whose views would be changed significantly by the proposals are considered high visual impact areas.

The degree of visual impact is influenced by the proximity of residential development to the site and the visibility of the site. In general high visual impact areas are within one kilometre of the site unless vegetation, buildings or elevation changes obstruct or enhance views and the site.

The range of high visual impacts on existing residences are as follows:

Site D 70 residences
Site E 60 residences
Site C 43 residences
Site B 39 residences

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Site A 30 residences
Site F 9 residences

An examination of the range of visual impacts on residential sites in peripheral areas provides, in descending order,the following analysis:

Site F 150+ residences
Site D 113+ residences
Site E 87
Site C 32
Site B 28
Site A 18

The + symbol indicates that the number is approximate.

Length of Roadway

The number of motorists who travel by the candidate sites was calculated based on the length of Major Roadway (highways and main arterials) and minor roadways (sideroads). Roads that are directly adjacent to sites were considered to have high visual impacts while the roads farther away have lower visual impacts. The six Sites have the following lengths of roads (in kilometres) associated with high impacts.

Major Roads

Site A 6.65 kilometres
Site B 6.00 kilometres
Site C 5.80 kilometres
Site D 4.65 kilometres
Site F 4.55 kilometres
Site E 2.90 kilometres

Secondary Roads

Site E 13.70 kilometres
Site D 7.80 kilometres
Site F 7.45 kilometres
Site C 6.30 kilometres
Site B 6.10 kilometres
Site A 5.10 kilometres

The following lengths of road are associated with medium to low impacts:

Major Roads

Site C	5.75 kilometres
Site D	4.88 kilometres
Site E	1.60 kilometres
Site B	1.30 kilometres
Site A	0.00 kilometres
Site F	0.00 kilometres

Secondary Roads

Site D	16.60 kilometres
Site E	12.35 kilometres
Site A	6.60 kilometres
Site C	1.50 kilometres
Site B	1.00 kilometres
Site F	0.00 kilometres

Designated Viewing Areas

Some of the sites, notably D, E and F are associated with a provincially significant visual resource, the Niagara Escarpment. Sites D and E are located within the viewing area of two provincially designated lookouts. Site F is adjacent to Bayview Park which is used as a viewing area and recreation. Based on the proximity of the site to the Escarpment and the distance from provincially significant or public survey areas the six sites are ranked as to impacts on designated viewing areas.

Site F is within 100 metres of the base of the Escarpment and the proposed landfill obscures views from Bayview Park.

Site E is within 2.25 kilometres of Rattlesnake Point and is within 3.00 kilometres of Mount Nemo.

Site D is within 5.5 kilometres of Rattlesnake Point and is within 6.0 kilometres from Mount Nemo.

Land Use Implications

Land use which is adjacent to the site can be adversely affected by the visual impacts of a landfilling operation. This is particularly true when large numbers of people-associated land uses i.e., schools, hospitals, senior citizen homes, etc. are visually impacted by the site.

Ranking the sites based on visual impacts on land use the following analysis is presented:

Site C — Can be seen from two commercial areas and several other land uses, including the cemetery.

Site E — Can be seen from local "U-Pick-It" operations and Milton District Hospital, and the Industrial/Commercial corners of Derry Road and First Line.

Site F — Can be seen from Bayview Park, Burlington Rod and Gun Club and can be seen from numerous land uses in Burlington.

Site B — Can be seen from two small commercial areas and other land uses (i.e., Munn's Church).

Site A — Can be seen from one small commercial area and the cemetery.

Site D — St. Clair Masonic Temple and (farther away than Site E) local "U-Pick-It" operations and Milton District Hospital.

Candidate Sites - Visual Impacts

Based on the previous analysis the following chart compares the visual impacts of all the sites from highest visual impacts to lowest. (See Figure #1).

FIGURE 1

VISUAL ASSESSMENT

Visual Impacts	Candidate Sites A	B	C	D	E	F
Limit of Visibility (ha)[1]	1064	1097	1671	3324	2895	505
Average Length of View (km)	1.0	1.1	1.2	2.2	2.0	0.9
Designated Viewing Areas	0	0	0	2	2	1
Number of Residences in Areas of High Impact	30	39	45	70	60	9
Land Use Affected in High Impact Areas	2	3	4	1	3	5+
Number of Residences in Areas[2] of Medium to Low Impacts	18	28	32	113+	87+	150+
Length of Major Roads (km) in High Impact Areas	6.65	5.80	6.00	4.65	2.90	4.55
Length of Major Roads (km) in Medium to Low	0	1.20	5.75	4.88	1.60	0
Length of Secondary Roads (km) in High Impact Areas	6.10	5.10	7.45	7.80	13.70	6.30
Length of Secondary Roads (km) in Medium to Low Impacts	6.00	1.00	1.50	16.60	12.35	0

1 = Includes area of site
2 = Number of residences approximate

7.0 EVALUATION OF SITE PLAN AREAS

General

As part of the Stage 2C process, Site Plan Areas were established. These Site Plan Areas show the proposed location of the landfill and service area within the Candidate Sites. In general, because Site Plan Areas are smaller in area than the Candidate Sites, the limits of visibility and the overall visual impacts are reduced. The Site Plan Areas allow for preservation of some of the woodlots found on the Candidate Sites but not previously considered since the specific landfill locations had not been identified.

As well, residences on the Candidate Sites were not considered but can now be situated adjacent to a Site Plan Area.

Visual impacts of these smaller areas were compared against the evaluation of the Candidate Site areas. Changes as a result of a smaller site and more specific locations were noted.

SITE PLAN AREA A

The location of the Site Plan Area approximately one kilometre away from Trafalgar Road and 1/2 kilometre from 9th Line will aid in reducing visual impacts along these roadways. The two small woodlots which now lie outside the western boundary of the site provide for some natural screening. Since the Site Plan Area is smaller (approximately 50% of the Candidate Site area) it is reasonable to assume the limits of visibility will also be reduced, particularly to the west and somewhat to the east. North and south boundaries should remain the same.

Changes in Areas of High and Medium to Low Visual Impacts

Residential

The location of Site Plan Area A will decrease the visual impacts on the ten residences west of Trafalgar Road. However, the seven residences that

were along the north side of Burnhamthorpe Road and residences along the east side of Trafalgar Road will now be adjacent to the site and subject to high visual impacts.

Major and Secondary Roads

2.25 kilometres of Trafalgar Road would change from high to medium-low visual impacts. 0.40 kilometres of Burnhamthorpe Road West of Trafalgar would change from high medium to low visual impacts. All other roadway designations would remain the same.

Land Use

The commercial area at the corner of Burnhamthorpe Road and Trafalgar would not now have major visual impacts; however, the Welding Institute would now have high visual impacts, particularly at the rear of the buildings.

SITE PLAN AREA B

Changes in Visual Character and Visibility

The location of Site Plan Area B places the landfill to the north of the Candidate Site area. This places the southern boundary approximately one kilometre away from Highway 5. Two small woodlots south of the site are now preserved and this will aid in screening the site. Visibility of the site will be reduced in the south but will be essentially the same in the north, east, and west.

Changes in Areas of High and Medium to Low Visual Impacts

Residential

Five residences south of Highway 5 will have decreased visual impacts (from high to medium-low). Six residences which were on the Candidate Site along Trafalgar Road north of Highway 5 will now be subject to high visual impacts.

Major and Secondary Roads

2.3 kilometres of Highway 5 will change from high to medium-low.

0.40 kilometres of Trafalgar Road south of Highway 5 will change from high to medium-low.

0.30 kilometres of Sixth Line south of Highway 5 will change from high to medium-low.

Land Use

Visual impacts would be reduced on the commercial intersection of Highway 5 and Trafalgar Road.

SITE PLAN AREA C

Changes in Visual Character and Visibility

Site Plan Area C is located in the northwest corner of the Candidate Site area. The site is adjacent to Trafalgar and Burnhamthorpe Roads. Visibility will be reduced to the northeast, east, and southeast. The preservation of the larger woodlots to the east and southeast will aid in screening the site from Highway 5 and Ninth Line.

Changes in Areas of High and Medium to Low Visual Impacts

Residential

Five residences south of Highway 5 will change from high to medium-low impacts.

Five residences previously on the Candidate Site, four along the south side of Burnhamthorpe Road and one along the east side of Trafalgar are now adjacent to the site and will be subject to high visual impacts.

Two residences on the Candidate Site near Ninth Line have medium to low visual impacts.

Two residences east of Ninth Line will change from high to medium-low.

Three residences, two on Burnhamthorpe near Ninth Line and one on Ninth Line will change from high to medium-low visual impact.

Major and Secondary Roads

1.45 kilometres of Highway 5 will change from high impact to medium-low impacts. 1.50 kilometres of Burnhamthorpe east of the site will change from high to medium-low impacts. 2.70 kilometres of Ninth Line will change from high to medium-low impacts.

Land Use

The change in visual impacts on land use is that the site is now located farther away from the Glen Oaks Memorial Gardens cemetery and further from the commercial intersection of Highway 5 and Trafalgar Road.

SITE PLAN AREA D

Changes in Visual Character and Visibility

The Site Plan Area is located in the southwest corner of the Candidate Site. The Site Plan Area sets the northern boundary half a kilometre south of Britannia Road. The small woodlot to the north of the Site Plan Area has been preserved which will provide some screening. Visibility will remain essentially the same with a small increase in the distance between the site and northern boundary.

Changes in Areas of High and Medium to Low Visual Impacts

Residential

Eight residences north of Britannia on First Line will change from high to medium-low impacts. Seven residences north of Britannia Road on Highway 25 will change from high to medium-low impacts.

Two residences that were on the Candidate Site area along First Line are now adjacent to the site and will have high impacts.

Major and Secondary Roads

1.45 kilometres of Highway 25 will change from high to medium-low impacts.

1.20 kilometres of First Line will change from high to medium-low impacts.

Designated Viewing Areas

Visual access to the site from the lookouts on Mount Nemo and Rattlesnake Point will not change substantially.

Land Use

The distance from the closest other land use, the Masonic Temple, would be increased.

SITE PLAN AREA E

Changes in Visual Character and Visibility

The Site Plan Area places the site in the centre of the Candidate Site. The configuration of the plan allows for the preservation of the large woodlot to the south of the site and a portion of the woodlot on the west side of the site. Due to the central location of the Site Plan Area and the close proximity of the proposed buffer (approximately 0.5 kilometres from the boundary of the Candidate Site) the limits of visibility will not change substantially. The changes allow for a greater separation between the site and Derry and Britannia Roads.

Changes in Areas of High and Medium to Low Visual Impacts

Residential

Three residences on Tremaine Road south of Britannia Road will change from high to medium-low impacts.

While there is an increased distance to residences in the north, the higher elevation maintains visual access to the site.

Five residences which were on the Candidate Site are now adjacent to the site and will have high visual impacts.

Major and Secondary Roads

1.70 kilometres of Derry Road will be changed from high to medium to low impacts.

1.25 kilometres of Britannia Road will be changed from high to medium-low impacts.

Designated Viewing Areas

Visual access to the site from the lookouts at Mount Nemo and Rattlesnake Point shall not change substantially. The large woodlot on the western boundary will help screen the site.

Other Land Use

The visual impacts on other local land uses will not change substantially.

SITE PLAN AREA F

Changes in Visual Character and Visibility

The Site Plan Area occupies the entire Candidate Site and therefore there is little change to the visual impacts identified previously in this report.

Changes in Areas of High and Medium to Low Visual Impacts

Other Land Use

The close proximity of Bayview Park to the Site Plan Area will mean a high degree of visual impact on this site. The use of the area as a lookout will also be impaired. If Site Plan Area F is developed as a landfill, thought should be given to relocating the Park and providing a lookout in another area. As well, the close proximity of the existing landfill may increase the visual impacts of the area from a distance. The existing landfill site should be rehabilitated as quickly as possible to reduce the amount of exposed landfill and to provide a buffer to the western side of the site.

8.0 A COMPARISON OF VISUAL IMPACTS OF THE SIX SITE PLAN AREAS

Visual Character

The six Site Plan Areas do not alter the visual character significantly from that identified in the Visual Assessment of the Candidate Sites. Site Plan Areas A, B, C, D, and E all reduce the area utilized for landfilling. Site F occupies the same size area as the Candidate Sites.

Visibility/Length of Views

The highest degree of visibility is Site F since it has the same visual impacts as the Candidate Site. Site D, E and B have smaller sites but their limits of visibility are not altered significantly. Site Plan Areas A and C reduce visibility the most with A somewhat better at reducing visual impacts overall because of its location away from major roadways. Since the limit of visibility will not be altered to any great extent the areas are assumed to be the same as the Candidate Sites.

Number of Residences

The change in high visual impact on residences due to the Site Plan Areas are in descending order:

Site E 62 Residences
Site D 57 Residences
Site C 40 Residences
Site B 40 Residences
Site A 28 Residences
Site F 9 Residences

The change in medium to low visual impacts on residences are:

Site F 150+ Residences
Site D 128+ Residences
Site E 90+ Residences
Site C 44 Residences
Site B 33 Residences
Site A 28 Residences

The + symbol indicates that the number is approximate.

Length of Roads

The change in high visual impacts on major roads are as follows:

Site F & C 4.55 kilometres
Site A 4.40 kilometres
Site D 3.20 kilometres
Site B 3.10 kilometres
Site E 1.20 kilometres

Medium to Low Visual Impacts on Major Roads:

Site C 7.20 kilometres
Site D 6.33 kilometres
Site B 4.00 kilometres
Site E 3.30 kilometres
Site A 2.25 kilometres
Site F 0.00 kilometres

The change in high visual impacts on Secondary Roads are as follows:

Site E 12.45 kilometres
Site D 6.60 kilometres
Site F 6.30 kilometres
Site A 5.70 kilometres
Site B 4.80 kilometres
Site C 3.25 kilometres

Medium to low impacts on Secondary Roads:

Site D 17.80 kilometres
Site E 13.60 kilometres
Site A 7.00 kilometres
Site C 5.70 kilometres
Site B 1.30 kilometres
Site F 0.00 kilometres

Designated Viewing Areas

Site Plan Areas D, E and F are the three principal sites located near designated viewing areas. Visual access will not be altered significantly to these areas by the site plan configurations.

Land Use Implications

The major visual impacts on land use are as follows in descending order:

Site F - Bayview Park, the Burlington Rod and Gun Club and other land uses along Plains Road

Site C - The Welding Institute

Site E - Local "U-Pick-It" operations, the industrial area at Derry Road and First Line, and the Milton District Hospital.

Site D - The St. Clair Masonic Temple, local "U-Pick-It" operations and the Milton District Hospital

Site B - One small commercial area and Munn's Church

Site A - The Glen Oaks Memorial Gardens cemetery.

Based on this analysis, the following chart compares the visual impacts for all the site plan areas (see Figure 2).

FIGURE 2

VISUAL ASSESSMENT

	Site Plan Areas					
	A	B	C	D	E	F
pacts						
Visibility (ha)[1]	1064	1097	1671	3324	2895	505
ength of View (km)	1.0	1.1	1.2	2.2	2.0	0.9
d Viewing Areas	0	0	0	2	2	1
Residences in Areas mpact	28	40	40	57	62	9
Affected in ct Areas	1	2	2	1	3	5+
Residences in Areas[2] to Low Impacts	28	33	44	128+	90+	150+
Major Roads (km) mpact Areas	4.40	3.10	4.55	3.20	1.20	4.55
Major Roads (km) to Low	2.25	4.00	7.20	6.33	3.30	0
Secondary Roads (km) mpact Areas	5.70	4.80	3.25	6.60	13.45	6.30
Secondary Roads (km) to Low Impacts	7.00	1.30	5.70	17.80	13.60	0

des area of site
r of residences approximate

9.0 MITIGATION

General

Before the site Site Plan Areas can be finally compared and prioritized for landfilling from a visual perspective, the options for mitigation should be determined.

Visual mitigation measures for landfill sites are usually directed at reducing impacts by changing the location and size of the landfill or by screening. Additional measures such as progressive rehabilitation and landscaping can also aid in integrating the landfill into the surrounding landscape.

The visual techniques associated with landfilling are as follows:

1. Where the size of site area permits, place the landfill operations as far away from residences, major roadways, recreation areas, commercial districts, etc. as possible.

2. Preserve the existing vegetation, particularly large vegetative screens such as woodlots or hedgerows.

3. Follow the contours of the land, mimic the surrounding landforms, avoid geometric forms.

4. Minimize the height of the landfill, keep maximum elevations below the height of existing vegetation.

5. Rehabilitate the landfill as soon as it has reached its final contours.

6. Vegetative screening of the landfill should follow the existing patterns of woodlots and hedgerows and use indigenous plant material. Screening should not be geometric in appearance.

7. Wind blown litter should be controlled by fencing, wind rows, and other forms of planting.

Options for Mitigation

The six sites were compared based on the following assumptions:

1. All sites are to be landscaped and rehabilitated in an equal manner.

2. The area of the site to be developed is approximately 102-121 ha in size, is 15 m high and has a capacity of 11.3 million cubic yards.

3. Screening is most effective in flat landscapes. As well, screening of houses directly adjacent to a site (within 500 metres) while effective in blocking views creates a sort of "green wall" effect adjacent to residences. A larger amount of separation may be required.

4. Based on the impact criteria, mitigation measures which reduce visibility, minimize residential impacts, reduce the amount of landfill along major and minor roads and reduce impacts on designated viewing areas will be considered the most desirable.

Based on these considerations the options for visual mitigation of each site are:

SITE PLAN AREA A

1. Locating the landfill away from residents, commercial areas, and major roads, particularly along Trafalgar Road as indicated in the site plans, aids in reducing the impacts.

2. The two small woodlots on the site should be preserved for screening of the landfill.

3. While screening will be required on all boundaries of the site, heavy screening will be required in conjunction with Burnhamthorpe Road and Highway 403.

SITE PLAN AREA B

1. Because of the site's location, there is little opportunity to preserve the large woodlot on the site. The two small woodlots adjacent to the southern boundary should be preserved.

2. Heavy screening will be required along Burnhamthorpe Road, Highway 5 and the southwest side of the site to screen views from the road and residents.

SITE PLAN AREA C

1. The location of Site C (Site Plan Area) next to Trafalgar Road and Burnhamthorpe Road will increase the need to screen these areas.

2. The preservation of woodlots along the southern boundary will help in screening the site.

SITE PLAN AREA D

1. The woodlot adjacent to the northern boundary of the site should be preserved.

2. Heavy screening will be required on the north and south of the site.

3. It will be difficult to mitigate landfill operations in regard to views from Escarpment areas.

SITE PLAN AREA E

1. Due to the number of residents who live in close proximity to the site in both the north and south screening should focus on these areas.

2. The two woodlots which will be preserved will aid in screening the site. The central woodlot may be difficult to save if affected by site operations.

3. It will be difficult to mitigate landfill operations in regard to views from the Escarpment area.

SITE PLAN AREA F

1. Based on a small site size there are no options for site location.

2. The preservation of existing vegetation will be difficult.

3. The site will require heavy screening on all sides.

4. It will be difficult to mitigate views from Burlington due to the prominent location of the landfill near the Escarpment.

5. The existing landfill site should be rehabilitated as quickly as possible.

Conclusions

Options for mitigation of the six candidate sites from highest (greatest options to mitigate) to lowest are:

1. - A, C
2. - B
3. - D
4. - E
5. - F

10.0 RECOMMENDATIONS

All six Site Plan Areas create potential visual impacts on the surrounding community. Ideally, an optimum site would be one which has a limited area of visibility, has a minimum of impact on residents in close proximity and in the peripheral areas of the site, is not highly visible from major or minor roadways and is not in close proximity to any designated viewing areas. All the sites exhibit greater or fewer of these visual impact characteristics.

The primary visual considerations in selecting potential landfill sites is the reduction of visual impacts on; viewers who view the site for the greatest length of time, areas of significant views, and sensitive viewing opportunities over which large numbers of persons see the site, e.g., hospitals, schools, etc .

Secondary considerations for visual impacts are those persons who view the site for short periods of time such as motorists travelling on major or secondary roadways adjacent to the site areas.

As well the overall visibility of the site reflects a sensitivity of the site to future land use. Areas which have a high degree of visibility may impact more people in the future as the area develops.

Finally, the opportunity to mitigate a site based on its size, location of landfill and screening factors can aid in reducing the visual impact of any given Site Plan Area.

In order to rank the six Site Plan Areas, each of the three major areas of consideration was subdivided into three classes of impact (high, medium, and low) based on the range of data collected for each of the visual measures.

The following chart illustrates the evaluation of the visual factors for the six Site Plan Areas (figure #3).

This chart is followed by a summary chart (Figure #4).

Evaluation Method

The evaluation of subfactors was conducted by dividing the data into classes based on the variation of that data. For example, if we had a total data set of 11 residences the classes would be 0-3 residences for low, 4-7 for medium and 8-11 for high. Each data set was then based on the total numbers of residences, longest length of road, largest area of visibility, etc. This method allowed comparison of the data to determine a site with the least visual impacts compared to others.

The data was ranked by simple comparison with a priority of 1, 2, 3, 4, 5 or 6. Where sites had the same priority, they were given the same number. Initially, the sub-factors were arranged in priority, secondary, and tertiary classification to aid in the ranking of information. However, the priorities for each grouping of the sub-factors was essentially the same so that no weighting was required.

Ranking of Primary Sub-Factors	A	B	C	D	E	F
	-	-	-	3H	2H	1H
	1M	1M	1M	-	2M	2M
	3L	3L	3L	1L	-	1L
Order of Priority	1	1	1	4	3	2
Ranking - Secondary Sub-Factors	A	B	C	D	E	F
	1H	1H	2H	4H	3H	2H
	3M	3M	2M	1M	1M	1M
	2L	2L	2L	1L	2L	3L
Order of Priority	1	1	2	5	4	3
Ranking - Tertiary Sub-Factors	A	B	C	D	E	F
	-	-	-	-	-	-
	1M	1M	1M	-	-	-
	-	-	-	1L	1L	1L
Order of Priority	1	1	1	2	2	2

Order of Priority	1	1	1	2	2	2
Summary Ranking without weighting of Priority	A	B	C	D	E	F
	3(1)	3(1)	2(1)	-	-	-
	-	-	1(2)	1(2)	1(2)	1(2)
				-	1(3)	1(3)
	-	-	-	1(4)	1(4)	-
	-	-	-	1(5)	-	-

The recommended site locations based on visual consideration are in order of preference:

1. - Site A or B
3. - Site C
4. - Site F
5. - Site E
6. - Site D

PRIMARY SUB-FACTORS

FIGURE 3
VISUAL FACTOR EVALUATION

Sub-Factor

Number of resident viewers

Measures

Number of residences in high impact areas

Classes

0 - 20 = Low
21 - 41 = Moderate
42 - 62 = High

Evaluation

Site Plan Areas	A	B	C	D	E	F
Number of residents in high impact area	28	40	40	57	62	9
Class	M	M	M	H	H	L

Sub-Factor

Number of resident viewers

Measure

Number of residences in medium to low impact areas

Classes

0 - 50 = Low
51 - 101 = Moderate
102 - 152 = High

Evaluation

Site Plan Areas	A	B	C	D	E	F
Number of residents in medium to low impact areas	28	33	44	128+	90+	150+
Classes	L	L	L	H	M	H

Sub-Factor

Viewing areas

Measure

Number of viewing areas

Classes

0	L
1	M
2	H

Evaluation

Site Plan Areas	A	B	C	D	E	F
Number of viewing areas	0	0	0	2	2	1
Class	L	L	L	H	H	M

Sub-Factor

Land Use

Measure

Number of land uses in high impact areas

Classes

0 - 2	Low
3 - 5	Moderate
5 - 7	High

Evaluation

Site Plan Areas	A	B	C	D	E	F
Number of land uses in high impact areas	1	2	2	1	3	5+
Class	L	L	L	L	M	H

SECONDARY SUB-FACTORS

Sub-Factor

Views from major roadways

Measure

Length of major roadways in high impact areas

Class

0 - 1.51 = Low
1.52 - 3.03 = Medium
3.04 - 4.55 = High

Evaluation

Site Plan Areas	A	B	C	D	E	F
Length of major roadway (km) in high impact areas	4.40	3.10	4.55	3.20	1.20	4.55
Class	H	H	H	H	L	H

Sub-Factor

Views from roadways

Measure

Length of major roads in medium to low impact areas

Class

0 - 2.40 = Low
2.41 - 4.81 = Moderate
4.82 - 7.22 = High

Evaluation

Site Plan Area	A	B	C	D	E	F
Length of major roadway in medium to low impact area	2.25	4.00	7.20	6.33	3.30	0
Class	L	M	H	H	M	L

Sub-Factor

Views from minor roadways

Measure

Length of minor roadway
in high impact area

Class

0 - 4.15 Low
4.70 - 8.31 Moderate
8.32 - 12.47 High

Evaluation

Site Plan Area	A	B	C	D	E	F
Length of minor roadway (km) in high impact areas	5.70	4.80	3.25	6.60	12.45	6.30
Class	M	M	L	M	H	M

Class

Sub-Factor

Views from roadway

Measure

Length of Minor roadway in medium to low impact areas

Class

0 - 5.93 Low
5.94 - 11.87 Moderate
11.88 - 17.81 High

Evaluation

Site Plan Area	A	B	C	D	E	F
Length of minor roadway in medium to low impact areas	M	L	L	H	H	L

Sub-Factor

Visibility of the site	7.0	1.30	5.70	17.80	13.60	0

Measure

Area of the limit of visibility

Class

0 - 1108 ha = Low
1109 - 2217 ha = Moderate
2218 - 3326 ha = High

Evaluation

Site Plan Area	A	B	C	D	E	F
Visibility of Site (ha)	1064	1097	1671	3324	2895	505+*
Class	L	L	M	H	H	H

TERTIARY SUB-FACTORS

Sub-Factor

Mitigation

Measures

Mitigation by screening
Mitigation by site placement

Class

1 Easily screened - Low
2 Can be screened partially - Moderate
3 Difficult to screen - High

Evaluation

Site Plan Area	A	B	C	D	E	F
Mitigation by screening	M	M	M	L	L	L

*505+ means that the site can be seen from a larger area, particularly elevated buildings, bridges, etc. as well as the local area mapped.

FIGURE 4
SUMMARY OF EVALUATION

	Candidate Sites					
	A	B	C	D	E	F
Primary Sub-Factors						
Residences in High Impact Areas	M	M	M	H	H	L
Residences in Medium to Low Impact Areas	L	L	L	H	M	H
Viewing Areas	L	L	L	H	H	M
Land Use	L	L	L	L	M	M
Secondary Sub-Factors						
Major Roadways in High Impact Areas	H	H	H	H	L	H
Major Roadways in Medium to Low Impact Areas	L	M	H	H	M	L
Secondary Roadways in High Impact Areas	M	M	L	M	H	M
Secondary Roadways in Low Impact Areas	M	L	L	H	H	L
Visibility	L	L	M	H	H	H
Tertiary Sub-Factors						
Mitigation by Screening	M	M	M	L	L	L